The Saint Anthony Falls Virtual Tour

Note: To be used in cooperation with text from the signs.
The Entrance
The Pillsbury A Mill

The Pillsbury A Mill of Minneapolis, Minnesota, was the first large-scale flour mill in the United States. It was built in 1855 by the Pillsbury family and became the centerpiece of the Pillsbury empire. The mill was designed to process the abundant wheat produced in the Northern Great Plains.

The mill was powered by the Mississippi River, which provided the necessary water power to run the machinery. The water was used to drive the millstones, which were used to mill the wheat into flour. The mill was a symbol of American industrialization and the economic growth that followed.

Today, the Pillsbury A Mill is a historic site and a museum, preserving the history of the flour industry and the Pillsbury family. It is a reminder of the role that the mill played in the development of the Midwest and the United States as a whole.
The Pillsbury A Mill

• The Pillsbury A Mill, built of Platteville limestone, was the world’s largest flour mill when it was completed in 1881. The design by LeRoy S. Buffington is considered a classic of industrial architecture, and the interior of mill boasted state-of-art technology. It was designated a National Historic Landmark in 1966. The mill originally produced 5,000 barrels of flour per day, a capacity later increased to more than 17,000 barrels. Pillsbury’s Best Flour is still sold around the world.

• The company rewarded its skilled workers in way that were years ahead of the practice in other industries. In 1883 it established an employee profit-sharing plan. Unions representing most mill employee negotiated an eight-hour day in 1902.

• When Charles A. Pillsbury opened the A mill in 1881, machinery was driven directly by the water entering the mill through a 400-foot canal from the river. Closed off in the 1950s, the canal still exists beneath Main Street. The tailraces through which its water emptied can be seen below the river’s bank. In the 1880’s flour mills stood along Main Street, but the milling district never rivaled that on the west bank.

• While the other mills are no longer standing, the Pillsbury Company still operates a large complex of buildings here. The sound of milling can still be heard coming from the South A Mill. Trucks and trains deliver grain for processing. The elevators hold more than three million bushels of grain. New food produces are developed in nearby research facilities.
The Pillsbury A Mill (cont.)

- The canal that supplied waterpower to the A mill emptied back into the river through these tailraces. The Pillsbury mill stopped running on direct drive waterpower in 1955.
- A mechanical or “direct drive” waterpower system, shoving water from the river channeled through raceways to drop into turbine pits, the force of its fall rotating turbines that in turn drove machinery in the mills. The two Victor turbines used in the A mill each generated 1,200 horsepower. This was the largest direct drive waterpower system ever constructed.
- This Pillsbury Company advertisement from 1885 highlights and exaggerates the Pillsbury A Mill on the east side and other Pillsbury mills on the west, deliberately obscuring mills belonging to its rivals.
- By 1880 Minneapolis mills had replace millstones with iron or porcelain rollers for grinding flour. These roller stands were in the Pillsbury A Mill.
Another View of the Pillsbury A. Mill
Pettingill’s Wonderful Water
Pettingill’s Wonderful Water

- A natural spring flows from the rock at the base of Hennepin Bluff below this spot. According to tradition, the iron-red mud at the spring provided pigment for Native Americans. White settlers of the 1850s believed the water had medicinal qualities. In 1875 the enterprising M. P. Pettingill capitalized on the popularity of the falls as tourist mecca and health resort by building a spa and selling the water. The business was abandoned in the early 1880s when the source of the spring was traced to a dirty swamp some distance away.
The sun sets over an era of different histories...
Portaging Around the Falls
The Portage Trail

• For untold generations of Indian people the Mississippi River was an important canoe route. To pass around the falls, the Dakota (Sioux) and the Ojibway (Chippewa) used a well-established portage trail. Starting at a landing below the site now occupied by the steam plant, the trail climbed the bluff to this spot. From it followed the east bank along what is no Main street to a point well above the falls.
Through the remnants of a canal once used to power the mills, a different type of dam can be seen at the falls.
The Mississippi River and Saint Anthony Falls
The Mississippi River

• The Mississippi River is one of the largest rivers in the world. It divides east from west through the center of the United States: boundary, obstacle, water supply, drainage system, highway. It is 2,350 miles long and flows from Lake Itasca in northern Minnesota southward to New Orleans and the Gulf of Mexico. Its watershed covers 1,231,000 square miles and drains portions of thirty-two states and two Canadian provinces.

• Wild and natural resources abound in the river corridor. Forty percent of North American waterfowl migrate along its flyway. As a major mid-continent waterway, the Mississippi has carried people and products north and south over thousands of years.

• The river has stirred imagination and creativity in the worlds of art, music, dance, and literature. Stories of human time and habitation are found in cities and in open spaces; in bridges, dams, and navigation systems; in houses, farms, buildings, and industrial buildings; in parks, burial grounds, and archaeological remains. They are stories of places and people who have known and lived near the Mississippi, past and present.
The Falls of St. Anthony

• The Falls of St. Anthony is the only major waterfall on the Mississippi River. It has meant many things to people over time: a place of wonder and mystery; a landmark for travelers, explorers, traders and tourists; waterpower harnessed by early industrialists to produce wealth, power, and international fame for the region.

• The falls were not always where they are today. Over many centuries forces of erosion caused many to move upstream to their present location, where they were stabilized in the 1870s to protect the waterpower for the growing city of Minneapolis. The pathway of erosion defined the geography of the Twin Cities.
A Map of the Recession of the Falls
The Stone Arch Bridge

THE STONE ARCH BRIDGE

In 1879 St. Paul railroad magnate James J. Hill opened his “Manitoba line” to the Canadian border, linking the wheat fields of the Red River Valley with the flour mills of Minneapolis. To improve railroad access at the falls he built this 2,100-foot bridge that stands as a monument to the railroad era and Hill’s vision. Completed in 1883 with a sweeping curve at its west end, the bridge is a unique example of skilled masonry construction. In 1974 it was named a National Historic Civil Engineering Landmark.
The Stone Arch Bridge

• In 1879 St. Paul railroad magnate James J. Hill opened his “Manitoba Line” to the Canadian border, lining the wheat fields of the Red River Valley with the flourmills of Minneapolis. To improve railroad access at the falls he built this 2,100-foot bridge that stands as a monument of the railroad era and Hill’s vision. Completed in 1883 with a sweeping curve at its west end, the bridge is a unique example of skilled masonry construction. In 1974 it was named a National Historic Civil Engineering Landmark.

• For many years, the downstream view from the Stone Arch Bridge was not an open vista you see before you. Just to the south, the Tenth Street Bridge carried automobile traffic from one bank to the other. During the 1950’s, the Army Corps of Engineers built a lock at Saint Anthony Falls to allow barge traffic to move past the falls. As part of this effort, the Tenth Street Bridge was taken down so barges could freely move up and down river.
The Remains of the Tenth Avenue Bridge
Sawmilling: The City’s First Industry

Long before farmers plowed Minnesota's western prairie, lumberjacks were felling pines in its northern forest. Beginning in the late 1840s, trees from Gilroy land upriver were being cut into boards by sawmills at the Falls of St. Anthony. But the value of agriculture soon surpassed lumber throughout the state. The economic importance of sawmilling pushed sawmills away from the falls, where space was at a premium. By 1850 most of the sawmills, driven by steam, were spread along the river in North Minneapolis. The industry peaked in 1856 with the breasted outwelling of Minnesota's remaining forests. For the next sixty years Minneapolis was the nation's largest sawmill center, but by 1900, with the timber gone, nearly all the mills had closed.

Water rushed over the falls on the east side of Hennepin Island in the 1860s. In the left foreground is Hennepin Island in the River Mill and a sluiceway for lumber. In the upper left background is the Water House, a favorite destination of southerners who came to see the falls. Some buildings on Main Street still stand and are part of St. Anthony Main.

Nineteenth-century sawmilling was a dangerous and environmentally destructive business. Lumber cutters, mill workers were plentiful and expendable. Safeguards were few and accidents frequent. Testimony to this was the city's thriving business in artificial limbs. Piles of lumber and sawdust also made for an ever-present threat to the mills and nearby buildings.

The east channel became clogged with logs, tailraces, flames, and sawmill debits. The tailraces still functioning today are outlets for hydroelectric facilities operated by Northern States Power Company. These share Hennepin Island with the University of Minnesota hydroelectric laboratory, built in the 1900s. Hennepin Island and the east channel are now part of the Minneapolis Central Business Regional Park.

A disastrous fire in the Boom Island lumber yards in 1893 destroyed much of northeast Minneapolis.

“The natural appearance of the falls is entirely obliterated by the dams used for improving their power. The Falls of St. Anthony would barely be recognized by those who had visited them when nothing but the rock, the foaming water, and the trees were to be seen.”

James C. Garfield Talked on the Reclamation of the Minneapolis Falls, 1882
Sawmilling: The City’s First Industry

• Long before farmers plowed Minnesota’s western plains, lumberjacks were felling pine in its northern forests. Beginning in the late 1840’s, trees from Ojibway lands upriver were being cut into boards by sawmills at the falls of St. Anthony. But the value of agriculture soon surpassed lumber throughout the state. The economic importance of flour milling pushed sawmills away from the falls, where space was at a premium. By 1890 most of the sawmills, by then powered by steam, were spread along the river in north Minneapolis. The industry peaked in 1899 with frenzied cutting of Minnesota’s remaining forests. For the next six years Minneapolis was the nation’s largest sawmill center, but by 1910 with the timber, nearly all the mills had closed.

• The Nelson-Tenny sawmill was one of many built upriver from the falls in the 1880s. Its tall smokestack signaled the new steam technology that made the move away from the falls possible.

• The east channel became crowded with dams, tailraces, flumes, and sawmills debris. The tailraces still functioning today are outlets for hydroelectric facilities operated by the Northern States Power Company. These share Hennepin Island with the University of Minnesota’s hydraulic laboratory built in the 1930’s. Hennepin Island and the east channel are now part of the Minneapolis Central Riverfront Regional Park.
“The natural appearance of the falls is entirely obliterated by the means for used for improving their power. The falls of St. Anthony would hardly be recognized by those who had visited tem when nothing but rock, foaming water, and the trees were to be seen.”

James L. Greenloaf

Nineteenth-century saw milling was a dangerous and environmentally destructive business. Like trees, mill workers were plentiful and expendable. Safeguards were few and accidents frequent. Testimony to this was the city’s thriving business in artificial limbs. Piles of lumber and sawdust also made fire an ever-present threat to the mills and nearby buildings.

A disastrous fire in the Boom Island lumber yards in 1893 destroyed much of northeast Minneapolis.

Water rushed over the falls on the east side of Hennepin Island in the 1860s. In the left foreground on Hennepin Island is the River Mill and a sluiceway for lumber. In the upper left background is the Winslow House, a favorite destination of southern tourist who came to see the falls. Some buildings on Main Street still stand and are part of St. Anthony Main.
A View of the Stone Arch Bridge from a Canal
Changing the Shape of the Falls

Changing the Shape of the Falls

When Europeans first saw the falls, the crest was well below the riverbank. Natural erosion muted the rate of the falls to a mere steady drop at about five feet a year. By the 1800s, the water was approaching the upper bank of the limestone ledge that formed the falls. In the course of time, without human intervention, the falls would soon have become a rapids.

Large blocks of limestone, broken from the face of the falls, can be seen in this photo taken in 1850.

The pace of erosion increased after lumbering and milling began. Logs floating downstream crashed against the limestone and broke off great chunks. Exposing the falls and altering the course of the river destroyed the falls in the 1800s. To prevent further damage, the US Army Corps of Engineers built a concrete spillway under the river and placed a wooden apron over the ledge, protecting and hiding the face of the falls. The apron was later replaced with a metal spillway which is still in place.

In the 1960s Congress authorized a massive project to improve navigation on the upper Mississippi. Completion of the Upper Lock at St. Anthony Falls in 1964 altered the falls even further. Construction of the Upper Lock altered the entire west side of the falls, eliminating Uptown Island and the null pool and cutting off access to waterpower. Two sections of the Stone Arch Bridge were replaced by a steel bridge. A rocky outcrop known as Spirit Island was also destroyed. This landmark was the nesting ground of eagles that fed on fish before the falls and was significant in Dakota traditions. What remains of Spirit Island lies beneath the breakwater leading into the lock.

This is a diagram of the rock formations beneath the falls. Water moves near the soft limestone beneath the limestone, and the limestone ridge periodically breaks off. This continuous process of erosion causes the falls to move upstream over many years.

Construction of the Upper Lock went forward in the late 1850s.
Changing the Shape of the Falls

- In the 1930’s Congress authorized a massive project to improve navigation in the Mississippi. Completion of the Upper Lock at St. Anthony Falls in 1963 allowed shipping to use the river above Minneapolis. Construction of the Upper Lock altered the entire west side of the falls, eliminating Upton Island and the millpond and cutting off access to waterpower. Two sections of the Stone Arch Bridge were replaced by steel truss. A rocky islet known as Spirit Island was also destroyed. This landmark was nesting ground of eagles that fed on fish below the falls and was significant in Dakota traditions. What remains of Spirit Island lies beneath the breakwater leading into the lock.

- The pace of erosion increased after lumbering and milling began. Logs floating downriver crashed against the limestone and broke off great chunks. Excavating for dams and tailraces ate away at the stone, and a disastrous tunnel project nearly destroyed the falls in the 1860s. To prevent further damage, the US Army Corps of Engineers built a concrete dike under the river and placed a wooden apron over the ledge, protecting and hiding the face of the falls. The apron was later replaced with a concrete spillway, which is still in place.

- When Europeans first saw the falls, the crest was well below Hennepin Island. Natural Erosion caused the line of the falls to move steadily upriver about four feet a year. By the 1850s, the cataract was approaching the upper limit of the limestone edge that sustained it. In the course of time, without human intervention, the falls would soon have become a rapids.
The Falls of St. Anthony
The West Side Milling District

The West Side Milling District

Minneapolis on the west bank of the river quickly overtook St. Anthony on the east side. A major reason was more efficient use of water power. In 1857 the Minneapolis Mill Company started to build a canal along South First Street. Enlarged and extended several times, it provided waterpower to a total of 20 assorted factories and mills by 1871.

As flour production boomed in the 1870s, other industries were erected. Prior to the 1890s, through the 1890s, some two dozen flour mills lined the canal on both sides. Grain elevators, machine shops, barrel factories, and other facilities flourished around. Floor milling was not labor intensive. It depended more on machines than men, and employees were generally well paid. Although times forced many other industries, they made little headway among mill workers until after World War I.

After 1900 Minneapolis's fifty-year leadership in flour milling passed to other places. One by one milling operations closed. An era ended in 1940 when General Mills closed its mills at the falls and moved to Golden Valley. The St. Anthony Falls Historic District was created in 1971, and the Washburn A Mill became a National Historic Landmark in 1985. Demolition by fire in 1953, it serves as a dramatic reminder. Most of the other mills have been torn down or adapted to different uses.

Under the ground there remains an intricate system of canals, water gates, raceways, and turbine jets, along with foundations of many mills.

Barrel-making was an important industry at the falls, with over two million barrels produced in 1890. Flour was stored and shipped in wooden barrels until the turn of the century when cloth sacks came into use. The picture shows empty barrels being hauled into the Washburn A Mill.

Floor produced at the Washburn Mill won a gold medal at the International Millers' Convention in 1883, and Gold Medal Flour became a brand name known worldwide. The Washburn-Crescent Company became General Mills, Inc., in 1928, and the company still produces Gold Medal Flour.

Looking south along First Street during reconstruction of the powerhouse canal in 1885. The canal shown is being covered with a plank roadway for wagons. In the background, a second-story railroad trestle is being rebuilt.
The West Side Milling District

- Minneapolis on the west bank of the river quickly overtook St. Anthony on the East side. A major reason was more efficient use of waterpower. In 1857 the Minneapolis Mill Company started to build a canal along the South First Street. Enlarged and extended several times, it provided waterpower to a total of 25 assorted factories and mills by 1871.

- As flour production boomed in the 1870’s, other industries were crowded out. From the 1880s through the 1920s, some two dozen flour mills lined the canal on both sides. Grain elevators, machine shops, barrel factories, and other facilities clustered around. Flour milling was not labor intensive it depended more on machines than men, and employees were generally Well paid. Although unions formed in other industries they made little headway among mill workers until after World War 1. After 1930 Minneapolis’s fifty year leadership in flour milling passed on to other places. One by one milling operations ceased. An era ended in 1965 when General Mills closed its mills at the falls and moved to Golden Valley. The St. Anthony Falls Historic District was created in 1971, and the Washburn A Mill became a National Historic Landmark in 1983. Devastated by fire in 1991, it survives as a dramatic ruin. Most of the other mills have been torn down or adapted to different uses. Under the ground remains an intricate system of canals, water gates, raceways, and turbine pits, along with the foundations of many mills.
The West Side (cont.)

• Looking south along First Street during reconstruction of the waterpower canal in 1885. The canal shown is being covered with a plank roadway for wagons. In the background, a second-story railroad trestle is being rebuilt.

• Flour produced at the Washburn Mill won a gold medal at the International Millers Convention in 1880, and Gold Medal Flour became a brand name known worldwide. The Washburn-Crosby Company became General Mills, Inc. in 1928, and the company still produces Gold Medal Flour.

• Barrel-making was an important industry at the falls, with over two million barrels produced in 1880. Flour was stored and shipped in wooden barrels until the turn of the century when cloth sacks came into use. The picture shows empty barrels being loaded into the Washburn A Mill.

• Most of the flour companies had demolished their mills along the river by 1950, and gravel covered their foundations during the building of the Upper Lock in the 1960s. Still, many remnants of the milling era remained when this photograph was taken. The Minneapolis Eastern Railway, whose trestle looms in the foreground, once carried box cars to the mill. The Washburn A Mill appears in the foreground. It was the last mill here to operate on direct-drive waterpower. The A Mill closed in 1965 and burned in 1991.
The Ruins of the Mills
The Lock
The Lock Open
Giants in the Land
Giants in the Land

• Discriminatory rates charged by Chicago-owned railroads favored Milwaukee and Chicago flour mills. Minneapolis millers fought back by building their own railroad, the Soo Line.

• On May 2, 1878, a massive explosion caused by flour dust in the Washburn A Mill destroyed a third of the city’s milling capacity and killed 18 workers. Within a year the mills had been rebuilt, and by 1880 Minneapolis led the country in flour productions.

• In the 1880s and the 1890s two dozen flour mills, connected by a system of canals, sluiceways, and tunnels, dominated the west bank at the Falls of St. Anthony. They dominated much more. These towering mills cast their shadows over thousand of farms across the northern wheat belt. Their strength rested not only in waterpower but in money and organization. By 1889 three companies controlled two-thirds of the flour production at the falls.

• The names of mill owners and grain traders like Washburn, Pillsbury, Peavey, and Cargill became household words across the Northwest. Through the Minneapolis Millers Association, these men managed the market and – some said – controlled the prices paid to farmers. Wheat growers fought back by forming organizations of their own – the Farmers Alliance, the Equity Exchange, the Nonpartisan League, and the Farmers Union.
Giants (cont.)

- Minneapolis millers led the country in applying new technologies to the problem of producing fine flour from the hard spring wheat grown on the northern plains. Using a series of rollers instead of a single set of millstones, and removing fragments of bran with the middlings purifier, they achieved premium quality. They came back stronger than ever from the disastrous explosion in 1878 of the first Washburn A Mill, which leveled a large part of the milling district. To maintain an even flow of water, they pushed the government into building dams and reservoirs at the headwater of the Mississippi. After 1889 the Pillsbury-Washburn Company controlled development of all water and hydroelectric power at the falls. The millers also challenged the financial might of Chicago by building their own railroad in 1887. The “Soo”, or “miller’s line,” carried flour from Minneapolis to the East via Sault Ste. Marie. Over the bitter protests of Ojibway Indians in northern Minnesota, the US Army Corps of Engineers built six dams to control waterpower and navigation on the Mississippi. Begin in 1880, the dams raised the level of lakes and destroyed Native American homes, burial grounds, and wild rice beds.

- Grain elevators were built to store wheat grown on the western plains they were owned by Minneapolis milling companies, railroads, and large grain-trading firms like Peavey and Cargill. The use of cylindrical elevators of reinforced concrete was pioneered by the Peavey Company.
Congratulations!

You have now successfully completed the virtual tour of St. Anthony Falls. Tell everyone you know!
Fin.